

REMARKS

The applicants appreciate the Examiner's thorough examination of the application and request reexamination and reconsideration of the application in view of the preceding amendments and the following remarks

The Examiner rejects claims 1-3, 6, 9, 11-14, 24 and 26 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,420,008 to *Lewis et al.* in view of U.S. Patent No. 6,785,144 to *Akram*, and claim 10 under 35 U.S.C. §103(a) as being unpatentable over *Lewis* in view of *Akram* as applied above, and further in view of U.S. Patent No. 4,774,434 to *Bennion*. The Examiner also rejects claims 4, 5, and 27 under 35 U.S.C. §103(a) as being unpatentable over *Lewis et al.* in view of *Akram* as applied above and further in view of U.S. Patent No. 6,412,701 to *Kohama et al.*

Claim 1 of the subject application as amended is directed to an electrically active textile article comprising fabric, a circuit including traces and pads on a flexible substrate secured to the fabric by a thermoplastic reflow process, and at least one electronic component populating the circuit. Independent claims 24 and 26 also include the feature of the flexible substrate secured to the fabric by a thermoplastic reflow process.

Lewis is directed to a display sticker with an integral flasher circuit and power source. A thin flexible sheet 12 has a printed circuit board 14 adhesively affixed to its back surface 16. The front surface of the sticker may have printed thereon a product or company name, or other advertising indicia. The sticker preferably includes a pre-punched hole 24 through the flexible sheet 12 for an LED 26. The front surface of the circuit board is flat and free of components except for the LED. *See* Col. 3, lines 21-38 of *Lewis*. The LED attracts the attention of a desired observer to the sticker.

The Examiner alleges that *Lewis* discloses all of the elements of the applicants' claimed invention except for a circuit including traces and pads on a substrate, and further alleges that it would have been obvious to construct the circuit with traces and pads as suggested by *Akram* since

these traces and pads are commonly used in printed circuit boards to interconnect various electronic components.

The applicants submit that *Lewis et al.* and *Akram* both fail to disclose that the substrate is secured to the fabric by a thermoplastic reflow process as claimed in amended claim 1. As noted by the Examiner at page 3 of the Office Action, *Lewis et al.* and *Akram* both teach that securing of the fabric is achieved by an adhesive and fail to disclose securing the substrate by a thermoplastic reflow process as claimed by the applicant. The Examiner states that *Kohama et al.* teaches ultrasonic welding as a means for securing fabrics with circuits and that it would have been obvious to provide the securing means as ultrasonic welding as disclosed by *Kohama et al.* rather than adhesive in order to provide a more permanent attachment of the fabrics.

However, *Lewis et al.* specifically teaches away from permanently attaching the substrate to the fabric. One of the main objectives of *Lewis et al.* is to provide lightweight display devices designed to be removably affixed to various fabric articles. See Col. 1, lines 10-15 of *Lewis et al.* In fact, *Lewis et al.* discusses the disadvantages of permanently affixing a circuit to an article of clothing and the desire to provide a circuit which can be readily removed from the article of clothing numerous times. A few examples of this are shown below:

“However, such displays are designed either to be permanently affixed to an article of clothing, or to have different parts of the display located in different places in the article of clothing, or both.” Col. 1, lines 59-62 of *Lewis et al.* (emphasis added) (from the Background of *Lewis et al.* differentiating *Lewis et al.* from the prior art)

“There remains a need for a simple, inexpensive, self-contained sticker with an electronically controlled, dynamic display capable of being readily affixed to and readily removed from an article of clothing or other fabric article, and having minimal weight, thickness, and stiffness.” Col. 2, lines 23-28 of *Lewis et al.* (emphasis added)

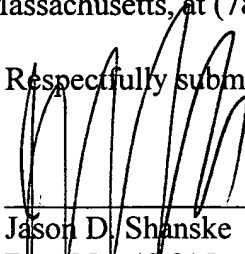
“The present invention meets these needs and offers other advantages with a display sticker with an integral flasher and power source adapted to be adhesively affixed to but readily removed from an article of clothing or other fabric article.” Col. 2, lines 30-33 of *Lewis et al.*

As *Lewis et al.* specifically teaches away from permanently securing the substrate to the fabric, it would not be obvious to modify the adhesive of *Lewis et al.* to provide a more permanent attachment. Such a modification would be contrary to the teachings of *Lewis et al.* Accordingly, as *Lewis et al.* teaches away from such a modification, independent claims 1, 2, and 26, and their respective dependent claims, are patentable over the combination of references.

Each of the Examiner’s rejections has been addressed or traversed. Accordingly, it is respectfully submitted that the application is in condition for allowance. Early and favorable action is respectfully requested.

If for any reason this Response is found to be incomplete, or if at any time it appears that a telephone conference with counsel would help advance prosecution, please telephone the undersigned or his associates, collect in Waltham, Massachusetts, at (781) 890-5678.

Respectfully submitted,



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